PREDICTION OF SHOCK BY PERIPHERAL PERFUSION INDEX

ABSTRACT:

Introduction:

Peripheral Perfusion index is a noninvasive parameter from pulse oximeter to detect peripheral perfusion in children. It is imperative to detect shock in early phases to reduce morbidity and mortality in this age group. Aim of this study is to detect clinical shock by monitoring Perfusion Index and to detect correlation of perfusion index with various blood pressures in pediatric age groups.

Materials and methods:

In this study 100 children in the age group of 1 month to 12 years who needed hemodynamic monitoring were included and categorized in to five age groups . In whom demographic data, Nutritional status, Vital parameters, PI from pulse oximeter and Lab parameters were recorded. Haemodynamic monitoring was done for 48 hours. Totally 65 children admitted with shock and 35 children admitted with out features of shock. Totally 936 hemodynamic measurements were done and analyzed. Correlation was done between Perfusion index, blood pressure and clinically assessed shock in all age groups.

Results:

Clinical shock in children can be reasonably predicted when perfusion index value is less than 1.15 in children less than 3 years of age, less than 1.25 in 3 to 10 years of age and less than 1.55 in 10 to 12 years of age. These values had high sensitivity and low false positivity in predicting clinically assessed shock in that particular age group.

Perfusion index had good correlation with Pulse pressure and Systolic blood pressures in all age groups and weak or very weak correlation with Mean arterial blood pressure and Diastolic blood pressures. A 57% reduction in perfusion index from the baseline value may predict impending shock.

Conclusion:

Perfusion index from pulse oximeter can be used as noninvasive and continuous parameter to monitor peripheral perfusion in children and to detect impending shock.

Key words:

Peripheral Perfusion Index, Pediatrics age groups, Clinical shock, Pulse oximeter.